



FOREST HEALTH PROTECTION Pacific Southwest Region

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Leaning Giant Sequoias on the Trail of the 100 Giants, Giant Sequoia National Monument

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On May 4, 2004 while looking at general insect and disease conditions along the Trail of 100 Giants, attention was diverted to two giant sequoias that were leaning toward the trail. These two trees were joined at the base and each was over 300 feet tall. The approximate diameter at breast height of the two stems was 20 feet. There was a large fire scar 12 feet wide at ground line on the side of the trees facing the lean. Another fire scar, 11 feet across at the widest point was present on the opposite side of the trees.

One of the sequoias had a dead top, and the other was alive but showed no obvious correction to the lean. Forest and District personnel were not certain how long these trees have been leaning or whether the degree of lean has changed over time. Three intermittent streams flow within the root zone of the sequoias. While these provide good soil moisture as far as tree health is concerned, they may also create unstable conditions for the leaning trees when the soil is saturated in the late winter and spring.

The amount of lean along the lower bole was estimated to be 10 degrees from vertical using a digital photo taken on May 20, 2004 (see figure 1). This lean creates a significant and potentially hazardous situation. If these trees would fail, they would strike a section of the paved trail along its northern portion. Two important courses of action are to 1) closely monitor the condition of the trees to determine if the degree of lean changes and 2) consider mitigating treatments.

MONITORING:

1. Carefully inspect the trees at least twice a year, preferably before the beginning of the visitor season and at the end.
2. Examine the condition of the soil and exposed roots near the base of the trees, especially on the side facing away from the direction of lean, looking for cracks that would indicate movement of the tree.
3. Measure the degree of lean using any method that personnel are familiar with. This can

include a clinometer, Silva compass, “smart” digital level, or digital images. Contact Forest Health Protection if assistance is needed with this.

MITIGATION:

1. If any change in lean is detected at any time, be prepared to close the northern portion of the Trail.
2. Consider re-routing the paved trail either around and above the two sequoias or below them to a location that would not be struck if the sequoias fell. This option should be considered immediately and before any change in tree lean is detected.

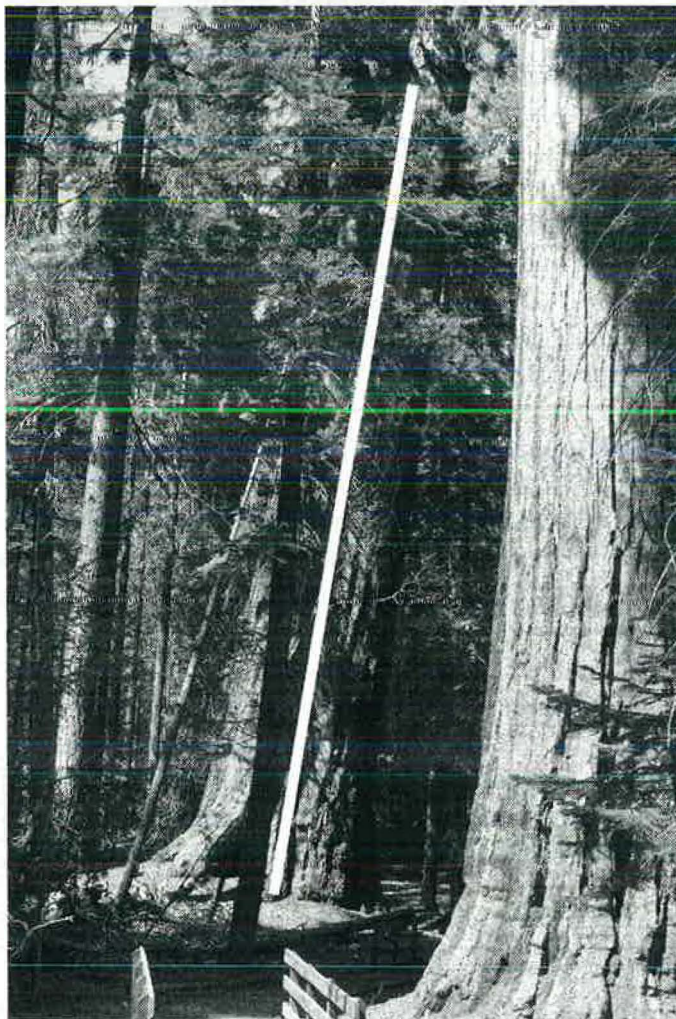


Figure 1. The amount of lean of the two giant sequoias was estimated to be 10 degrees from vertical using this digital image and PowerPoint. (Date of image was May 20, 2004.)